

NMEA 2009 - Round Table Discussion
“Preparing a Team to Excel at the National Ocean Sciences Bowl”

ABSTRACT:

Why do some schools always excel at STEM competitions? And why does their continued status as an elite team foster the competitive spirit in some teams, while it drives others away from competition? NOSB wants to facilitate a discussion with coaches, regional coordinators and educators on how to ensure continued student excitement and team involvement in NOSB and other STEM competitions. We will share teaching ideas and strategies for studying and preparing for the competition, as well as suggestions for coach mentoring.

I. Audience Participants (~20)

- A. NOSB National staff ; Current and prospective coaches (About half the audience); NOSB Regional Coordinators; Educator/science mentors; Evaluator from College of Exploration – manages NOSB’s longitudinal study.

II. Goals of Discussion

- A. Facilitate a discussion that reveals the perceived challenges and/or strategies for improving a team’s performance from a coach’s perspective.
- B. Combine these ideas with some of the strategies from the National office for prospective and current teams.
- C. To answer the following questions:
 - 1. Do you manage or participate in a STEM competition where the same team always wins?
 - 2. How do the winning teams prepare?
 - 3. Are the losing teams discouraged from competing or incentivized to compete again and win?
 - 4. How can you (coaches, teachers, managers, students) level the playing field?
 - 5. How can your National office level the playing field?

III. Strategies for Coaches (Suggestions were provided by the audience, including coaches of teams that have consistently placed first and second in their regional bowls.)

A. Recruitment

- 1. Contact other teachers to identify competitive, bright, hardworking students that also have an interest in science.
 - 2. Start with freshman and build a second JV (or B) team. The JV team should go everywhere, even to the competition with the Varsity (or A) Team.
 - 3. Personally invite a student to participate. A personal invitation goes a long way!
 - 4. Ask the team for suggestions on who (in the lower grades) should be invited to participate.
 - 5. Teams that excel usually have one or more students on their team that are exceptional across a variety of disciplines.
- **Challenge:** Students don’t always have time or the desire to be involved in just one activity. A program like this is a resume builder and high achievers want to enhance their

resumes in many directions, so be prepared that sharing these students' available time with other programs/activities. For example if you have 12 students in the program you will likely have an average of 7 showing up each day – students have a lot of other responsibilities.

B. Cater to Different Learning Styles

1. Take students out of the classroom and on FIELD TRIPS where the learning process is more hands-on.
2. Encourage as much interaction with scientists as possible- provide other learning opportunities besides studying a textbook.
3. Incorporate field trips, site/lab visits, hands-on work into preparation process.
4. Bring in presenters or go to lecture series that provide higher level presentations.
 - Contact your local college or university about opportunities for students to sit in on presentations
 - Contact local research facilities and invite scientists to present on their research to your team/class.
5. Remember your ultimate goal:
 - To encourage students to enter the ocean science field (Coaches, RCs)
 - To have increased participation at your bowl (RCs)
 - Focus on LEARNING & having FUN, not winning! (Coaches)
6. Set small goals for your team, (e.g. winning 3 rounds in a row, beating an undefeated team once) rather than focusing on trying to win the whole competition.

C. Preparation Suggestions

1. Students should be encouraged to write their own questions and exchange them amongst teams or even between schools.
2. Questions can be posted on the NOSB Facebook page (students need to [become fans](#)) to share/swap with other teams.
3. Identify key strengths of each team member- e.g. biology, geology person. Team members divide up the workload and specialize in specific areas/topics.
4. Encourage students to read the science section of the newspaper and current ocean science periodicals.
5. Incorporate strategy into the preparation process:
 - Using the clock to your advantage
 - Using “Interrupts” to your advantage
6. Teams should be better prepared in the areas of social science, marine policy, and current events.
 - Read the science section of newspapers and periodicals (eg. science section of NY Times on Tuesdays is an excellent resource)
 - See the [full resource guide](#) on NOSB's website
 - For 2010 – study marine technology
7. Break up subjects into subcategories and have each student do a presentation on a different topic. They should also develop a TCQ and 5 buzzer questions that their teammates need to answer based upon their presentation.

8. Request copies of marine science books from publishers or ask if you can view their online system. Most books and online resources come with a question database.
9. Practice with a buzzer system if possible and simulate a “real” competition to get students comfortable before competition day.
10. Contact your RC to see if they are able to loan your school a buzzer system to practice.

► Challenges

- More schools participate than there are buzzer systems.
- Schools are financial responsible for ensuring the buzzer system is returned in working order and the systems are valued at more than \$500 a piece.
- Depending on the location of the school to the regional site, the buzzer system would need to be mailed both ways at the expense of the school.
- Most regional sites will require that all buzzer systems be returned to the regional site a month prior to the competition.

► Options

- Students can fundraise and purchase a buzzer system for their school.

D. Foster Relationships

1. Foster good relationships within the team and between the coach and team.
 - Make the students feel they a part of something bigger than themselves, this keeps them invested and inspires them not to give up.
2. Maintain contact with NOSB alumni.
3. Ask alumni to present at a school function about their experience.
4. Encourage the parents to get involved. Parents should be encouraged to attend the regional competitions.

E. Timeline for Preparation Process

1. September – October
 - Play mini rounds – start practicing
 - Talk about ocean topics
 - Take a field trip the first week or two of school
2. November- prep becomes more serious
 - Run mock competitions using a buzzer system
 - Meet 2 to 3 times per week
 - Select the top students to sit on the A team. Determine the team through one-on-one competitions
3. After the holidays
 - Practice everyday.

****Check out NOSB’s [“Tips for Forming a Successful Team”](#) online****

IV. Strategies for Regional Coordinators/Managers

- A.** During the regional competitions offer a chance for the teams that have been disqualified and the B teams in attendance the chance to compete.
- B.** Use the same questions that are being used for the rest of the competition, but just don't provide official scores.
- C.** Approach online science organizations and journals about donating access to their site for students to study from.
- D.** Provide a sportsmanship award NOT based on academic merit and provide a buzzer system as the prize that the team can then use to practice.

► Challenges

- Retaining volunteers to continue to run competitions throughout the entire day may be challenging at some regional sites.
- Guidelines would need to be established to ensure that the extra rounds did not interfere with the official competition (i.e. – separate TCQ grader and Uber judge or no TCQ practice and all challenges handled in the room).

► Possible Solutions

- The new eNOSB may help alleviate some of these issues, by not needing as many volunteers per room.
- Undergraduates could serve as additional volunteers to help with the JV/non-competing rounds during the second half of a regional competition.
- During the annual volunteer trainings explain why you are asking volunteers to stay longer during the day- this may encourage some of the volunteers to agree to give up a few more hours.

V. Strategies for the National Office

- A.** Involve undergraduate students more – especially NOSB alumni.
 - 1. Send emails out to seniors with the locations and names of all the RCs and invite them to contact the coordinator near their college and offer to volunteer.
- B.** Provide subscriptions to science periodicals as prizes.
- C.** Diversify questions by incorporating a theme into each Finals Competition.
- D.** Recruit different question writers each year – 25% overlap from previous years.
- E.** Incorporate critical thinking questions – which require students to apply their knowledge (rather than memorize facts) and work as a team.